

WHAT IS CLAIMED IS:

- 1 1. For use in a router having a designated routing facility and a standby routing
2 facility, a method for processing information related to routing, the method
3 comprising:
 - 4 a) executing, with the designated routing facility, a routing protocol to
5 generate network topology information;
 - 6 b) providing a copy of network topology information generated by, and/or
7 network state information received by, the designated routing facility to the
8 standby routing facility; and
 - 9 c) executing, with the standby routing facility, a routing protocol based on
10 the network information provided by the designated routing facility, but
11 such that signaling from the standby routing facility to external nodes is
12 suppressed.
- 1 2. The method of claim 1 wherein the routing protocol is the IS-IS protocol.
- 1 3. The method of claim 1 wherein the routing protocol is a link state routing
2 protocol.
- 1 4. The method of claim 1 wherein the act or providing a copy of network
2 topology information is effected by having the designated routing facility flood
3 such information onto a local area network within the router.
- 1 5. The method of claim 1 further comprising:
 - 2 d) if a failure of the designated routing facility is determined, then electing
3 the standby routing facility as the designated routing facility.
- 1 6. The method of claim 5 wherein the act of electing includes having the standby
2 routing facility assume identification information of the failed designated routing
3 facility.

1 7. The method of claim 1 wherein the designated routing facility and the standby
2 routing facility share a common forwarding facility.

1 8 A router comprising:

- 2 a) a designated routing facility adapted for executing a routing protocol to
- 3 generate network topology information; and
- 4 b) a standby routing facility, the standby routing facility adapted for
- 5 i) accepting a copy of network topology information generated by,
- 6 and/or network state information received by, the designated
- 7 routing facility; and
- 8 ii) executing a routing protocol based on the network information
- 9 provided by the designated routing facility, but such that signaling
- 10 from the standby routing facility to external nodes is suppressed..

1 9. A network having at least two routers, each of the at least two routers
2 comprising:

- 3 a) a designated routing facility adapted for executing a routing protocol to
- 4 generate network topology information; and
- 5 b) a standby routing facility, the standby routing facility adapted for
- 6 i) accepting a copy of network topology information generated by,
- 7 and/or network state information received by, the designated
- 8 routing facility; and
- 9 ii) executing a routing protocol based on the network information
- 10 provided by the designated routing facility, but such that signaling
- 11 from the standby routing facility to external nodes is suppressed.

1 10. A machine-readable medium having machine readable instructions stored
2 thereon which, when executed by a machine, effect the method of claim 1.

1 11. For use in a router having a designated routing facility and a standby routing
2 facility, a method comprising:

- 3 a) informing an external node that the router has redundant routing
4 facilities;
5 b) informing an external node of the identify of the designated routing
6 facility;
7 c) providing, with the designated routing facility, network information to
8 the external node; and
9 d) providing, with the standby routing facility, network information to the
10 external node.

1 12. The method of claim 11 wherein the designated routing facility and standby
2 routing facility share a common forwarding facility.

1 13. The method of claim 11 wherein the act of informing an external node that
2 the router has redundant routing facilities includes generating and transmitting a
3 message including an identification of the router, address information of the
4 designated routing facility, and address information of the standby routing facility.

1 14. The method of claim 11 wherein the act of informing an external node that
2 the router has redundant routing facilities uses an existing BGP message format.

1 15. The method of claim 11 further comprising:

- 2 e) if a failure of the designated routing facility is determined, then
3 i) electing the standby routing facility as the designated routing
4 facility, and
5 ii) informing the external node of the identify of the newly elected
6 designated routing facility.

1 16. A router comprising:

- 2 a) a designated routing facility;

- b) a standby routing facility; and
- c) a signaling facility adapted for
 - i) informing an external node that the router has redundant routing facilities, and
 - ii) informing the external node of the identify of the designated routing facility,

wherein the designated routing facility is adapted to provide network information to the external node, and

wherein the standby routing facility is adapted to provide network information to the external node.

17. The router of claim 16 wherein the designated routing facility has a first internet address and the standby routing facility has a second internet address.

18. A network having at least two routers, each of the at least two routers comprising:

- a) a designated routing facility;
- b) a standby routing facility; and
- c) a signaling facility adapted for
 - i) informing an external node that the router has redundant routing facilities, and
 - ii) informing the external node of the identify of the designated routing facility,

wherein the designated routing facility is adapted to provide network information to the external node, and

wherein the standby routing facility is adapted to provide network information to the external node.

19. A machine-readable medium having machine readable instructions stored thereon which, when executed by a machine, effect the method of claim 11.

1 20. For use in a router adapted to interact with an external router having a
2 designated routing facility and a standby routing facility, a method comprising:

- 3 a) accepting, from the external router, the identify of the designated
4 routing facility;
5 b) accepting, from the designated routing facility of the external router,
6 network information;
7 c) using the network information accepted from the designated routing
8 facility of the external router for determining routes; and
9 d) accepting, from the standby routing facility of the external router,
10 network information, but not using it for determining routes.

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1 21. The method of claim 20 further comprising:

- 2 e) storing the network information accepted from the standby routing
3 facility of the external router.

1 22. The method of claim 20 further comprising:

- 2 e) accepting, from the external router, an indication that the designated
3 routing facility has failed;
4 f) accepting, from the external router, an indication that the standby
5 routing facility has been elected as the designated routing facility; and
6 g) using path information from the newly elected designated routing
7 facility.

1 23. The method of claim 21 further comprising:

- 2 f) accepting, from the external router, an indication that the designated
3 routing facility has failed;
4 g) accepting, from the external router, an indication that the standby
5 routing facility has been elected as the designated routing facility; and
6 h) using the stored path information from standby routing facility that is
7 now the newly elected designated routing facility.

1 24. A router adapted to interact with an external router having a designated
2 routing facility and a standby routing facility, the router comprising:

3 a) an input for

4 i) accepting, from the external router, the identify of the designated
5 routing facility, and

6 ii) accepting, from the designated routing facility of the external
7 router, network information; and

8 b) a routing facility for

9 i) using the network information accepted from the designated
10 routing facility of the external router for determining routes, and

11 ii) accepting, from the standby routing facility of the external router,
12 network information, but not using it for determining routes.

1 25. The router of claim 24 further comprising:

2 c) a storage device for storing the network information accepted from the
3 standby routing facility of the external router.

1 26. The router of claim 24 wherein the input is further adapted for

2 iii) accepting, from the external router, an indication that the
3 designated routing facility has failed, and

4 iv) accepting, from the external router, an indication that the
5 standby routing facility has been elected as the designated routing
6 facility, and

7 wherein the routing facility is further adapted to use path information from
8 the newly elected designated routing facility when the input accepts the indication
9 that the standby routing facility has been elected as the designated routing
10 facility.

1 27. The method of claim 25 wherein the input is further adapted for

2 iii) accepting, from the external router, an indication that the
3 designated routing facility has failed, and

4 iv) accepting, from the external router, an indication that the
5 standby routing facility has been elected as the designated routing
6 facility, and
7 wherein the routing facility is further adapted to use the stored path
8 information from standby routing facility if it is newly elected as the designated
9 routing facility.

1 28. A machine-readable medium having machine readable instructions stored
2 thereon which, when executed by a machine, effect the method of claim 20.

1 29. The router of claim 8 further comprising:

2 c) means for electing the standby routing facility as the designated routing
3 facility if a failure of the designated routing facility is determined.

1 30. The router of claim 16 further comprising:

2 d) means for electing the standby routing facility as the designated
3 routing facility if a failure of the designated routing facility is determined;
4 and

5 e) means for informing the external node of the identify of the newly
6 elected designated routing facility.